

**University of Porto**  
**Faculty of Psychology and Education Sciences**

**ARTISTIC ACTIVITIES IN CRÈCHE: CHARACTERISTICS AND  
QUALITY OF TEACHER-CHILD INTERACTIONS**

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## Resumo

O presente estudo exploratório caracteriza as atividades artísticas de acordo com várias características, nomeadamente, níveis de envolvimento adulto, temas/ conteúdos, materiais, tipo de grupo, estrutura e localização da atividade. Para além desta caracterização é explorada a relação entre essas características e a qualidade das interações professor-criança durante atividades artísticas. Recorreu-se a uma amostra de 31 salas pré-escolares, tendo sido realizados vídeos que posteriormente foram observados com as seguintes medidas de observação: *Activity Setting Measure* e *Classroom Assessment Scoring System Toddler*. Os resultados mostram associações positivas entre a qualidade das interações professor-criança e níveis mais elevados de envolvimento dos adultos, maior uso de manipulativos por parte das crianças, e recurso a atividades abertas.

**PALAVRAS-CHAVE:** atividades artísticas, qualidade, interações professor-criança, envolvimento do adulto, classroom assessment scoring system toddler

## **Abstract**

The current exploratory study characterizes the artistic activities according to several features, namely, levels of adult involvement, themes/ content, materials, social grouping, structure and location. Moreover, this study explores the relationship between those characteristics and the quality of the teacher–child interactions during artistic activities. A sample of 31 preschool classrooms was observed and video-taped. Observed activities and interactions were assessed with Activity Setting Measure and Classroom Assessment Scoring System Toddler tools. Results show positive associations between the quality of teacher-child interactions and higher levels of adult involvement, higher use of hands-on activities, and open-ended activities.

**KEY-WORDS:** artistic activities, quality, teacher-child interactions, activity setting, classroom assessment scoring system toddler

## **Abstrait**

L'étude exploratoire actuelle caractérise les activités artistiques selon plusieurs caractéristiques, à savoir, les niveaux d'implication des adultes, les thèmes/ contenus, les matériaux, le groupement social, la structure et la localisation. De plus, cette étude explore la relation entre ces caractéristiques et la qualité des interactions enseignant-enfant lors d'activités artistiques. Un échantillon de 31 salles préscolaires a été utilisé, et des vidéos ont été enregistrées et les activités et les interactions observées ont été évaluées à l'aide d'outils de mesure comme: Activity Setting Measure et Classroom Assessment Scoring System Toddler. Les résultats montrent des associations positives entre la qualité des interactions enseignant-enfant et des niveaux plus élevés de participation des adultes, une plus grande utilisation manipulatrice par les enfants, et l'utilisation d'activités ouvertes.

**MOTS-CLÉS:** activités artistiques, qualité, interactions enseignant-enfant, mise en place d'activités, classroom assessment scoring system toddler

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## **1. Introduction**

### **1.1. Quality in Pre-School Education**

During evaluation of the educational contexts it becomes necessary to understand the concept of quality, since according to several authors an educational context with quality can have a positive effect on children's development (Bairrão, 1998; Cryer, 1999; Leal, Gamelas, Abreu-Lima, Cadima, & Peixoto, 2009).

Throughout the decades, several studies have been developed with results pointing to the positive effects of the quality of educational contexts for the development of cognitive, linguistic and socio-behavioral skills (Leal et al., 2009). For instance, the findings of a study conducted by Sylva, Siraj-Blatchford, Taggart, Sammons, Melhuish, Elliot, & Totsika (2006) in England, demonstrated that pre-school quality is significantly connected to social, cognitive and language development even after taking into account the effects of many family and child factors.

However, the European Commission Childcare Network (1990) has stressed the difficulty of defining the concept of quality, since it should include the interests and views of families, professionals and children themselves.

Although it is complex to define quality due to different points of view, several studies have been carried out with the aim of bringing together the main features of this concept (Cadima, Aguiar, & Barata, 2014).

According to Katz (1998a), for a more global assessment of the quality of a pre-school educational context we should have in consideration five perspectives: top-down perspective; bottom-up perspective, outside-inside perspective; inside perspective to and outside perspective.

The perspective of adults responsible for implementing or approving the program is top-down perspective and is characterized by considering aspects of the program as the number of adults/ child, qualifications and professional stability, the characteristics of adult and child interactions, the characteristics of materials, equipment and space, the working and health conditions of professionals, hygiene and safety care (Katz, 1998a).

Bottom-up perspective refers to the child's point of view and concerns the perception of children about the pre-school education program in which they are integrated. Researchers are unanimous in considering that the child should feel integrated into the environment of the group's educational program, feel that is accepted, understood, protected by adults, intellectually involved and respected. When children show enthusiasm for participation and resistance for dropping out the program is considered to be of good quality (Katz, 1988a).

The perspective of the family of children is considered the outside-inside perspective to the program and focuses on assessing the relationship of teachers with children's families. Relationships between teachers and parents are established more easily and in a positive way if teachers provide an active participation and both are holders of the same values, educational and cultural goals. Moreover, when parents are able to recognize the teacher's effort, there is a greater likelihood of being positively related to the teacher, resulting in mutual respect and a tolerant environment (Katz, 1988a).

Professionals' perspective is considered the inside perspective and refers to how teachers perceive the program, how they feel about their relationships with co-workers, children, families and with the institution where they work (Katz, 1988a).

The perspective of the community and of the society is outside perspective and refers to the way society evaluates the program and focuses on community resources, policies and regulations, resources available to families, compatibility of programs with the resources of families and conditions of work, training and professional development (Katz, 1998a).

Following this same line of thinking, Taguma, Litjens, & Makowiecki (2012) has identified five quality-enhancing policies: establishing quality goals and regulations; developing and implementing programs and learning standards; improving qualifications, training and working conditions; involving families and communities, and conducting data collection, research and monitoring.

According to Cryer (1999), characteristics of pre-school contexts can be analyzed taking into account two broad features: process and structure. Process features refer to the dynamics and the set of interactions that take place in the educational context, not only between people but also between materials and people (Katz, Ruivo, Silva, & Vasconcelos, 1998b) and types of activities in which children are included (Espinosa, 2002). Structural features are related to people and the context characteristics. Those variables are relatively stable, for example, the size of the room, the number of people in the space, the academic level of professionals, etc. (Katz, et al., 1998b). Physical, material, organizational, human and financial aspects, that are considered structural variables, do not determinate the quality of educational contexts, for themselves, however, they provide the basic conditions that may directly and indirectly influence the quality of the education process (Katz et al., 1998b). According to Cryer (1999), a low number of children per adult, a reasonable experience of teachers, their academic level and their specific training are the best predictors of high quality in educational contexts. The contexts with better quality of the structural variables are likely to influence positively the process variables. For instance, research has shown that when adults had higher-level qualifications, children showed more progress relatively to co-operation and compliance and had a lower rate of antisocial behavior (Sammons, Sylva, Melhuish, Siraj-Blatchford, Taggart, & Elliot, 2003). In turn, when the qualification was lower, poorer outcomes were observed, for example, peer sociability, co-operation and conformity. Furthermore, qualifications had a positive association with children's pre-reading progress (Sammons, Sylva, Melhuish, Siraj-Blatchford, Taggart, & Elliot, 2002; Sylva, Melhuish, Sammons, Siraj-Blatchford, Taggart, 2004)

Despite structural variables play an important role for the quality of a context, they do not define it (Pinto, Pessanha, Barros, Grande, Aguiar and Nunes, 2009). Quality promotion will involve greater investment in structural

aspects, but quality levels with a developmental impact will be determined by processual aspects too (Leal et al., 2009). It means that those two variables, that aim to analyze the same concept, must be analyzed simultaneously because they interact in a dynamic, continuous and reciprocal way (Bairrão, 1998).

## **1.2. Adult-Child Interaction**

Bronfenbrenner (1978) defends the theory that children's development must be studied in a context of several environments since daily interactions between children and their context lead to learning and development (Bronfenbrenner & Morris, 1998; Hamre & Pianta (2007). A concept of interaction known as proximal process is essential in explaining developmental outcomes. According to several authors, the proximal process that occurs between children and their teachers are the primary mechanisms through which children learn (Hamre & Pianta, 2007; Pianta, La Paro, & Hamre, 2008).

For Hamre and Pianta (2007) the school is a social place since teaching is an interactive and interpersonal process. According to Postic (2008) interaction is a didactic system, which means that the action of the teacher affects the student and vice versa. It is a mutual interaction that occurs between people and for which they contribute to their own way of being (Bühler, 1962).

The support and attention given by adults to children is crucial to their development (Hohmann & Weikart, 2011). When children have the opportunity to develop feelings of trust, autonomy and initiative with adults, they "tend to develop attitudes and feelings of hope, acceptance, willpower and the ability and will to achieve goals" (Hohmann & Weikart (1997). A positive relationship let the child to face challenges in a constructive way (Howes, 2000) and to have fewer behavior problems (Mashburn, Pianta, Hamre, Downer, Barbarin, Bryant, & Burchinal, 2008). By being surrounded by people that children know and trust, they have the opportunity to explore the environment which promotes development (Post & Hohmann, 2011). According with Hughes, Zhang and Hill (2006), when children

establish a positive relationship with their educators, they tend to have a positive and tolerant relationship with their peers.

According to Zabalza (1998) "insecurity provokes fear, increases the tendency towards defensive behaviors, hinders the willingness to take risks inherent in any type of personal initiative, leads to dependent patterns of relationships, etc." In consonance with Zabalza (1998), Pianta (1999), highlights the idea that children who lacks emotional security may struggle to engage in the educational process. This means that children who do not have emotional support relationships are missing an important factor that allows effective learning (Pianta, Hamre, & Stuhlman, 2003). This idea refers us to the attachment theory that emphasizes the importance of security net that empowers children to develop. When teachers provide security and support, children became self-reliant and able to take risks because they are aware that the teacher is there to help (Bowlby, 1969).

In order to understand the children's experiences, it is necessary to consider adult-child interactions and based on this and on the need to organize the diverse literature about classroom processes that contribute for children development, Hamre and Pianta (2007) suggested a conceptual model, the Teaching Through Interactions Model. This model that proposes a multilevel, latent structure considers a large number of teacher behaviors. The proposed model suggests that interactions between children and adults are organized into two major domains: Emotional and Behavioral Support, and Engaged Support for Learning (Pianta, et al., 2008).

Emotional and Behavioral Support domain is comprised of dimensions associated with a warm, positive climate, teacher's sensitivity and responsiveness towards children's needs, and consideration for children's perspectives. This domain refers to adult-child interactions and it focuses on adults efforts to support children's' emotional and social functioning (Pianta, et al., 2008).

Engaged Support for Learning is connected to the way adult promote cognitive stimulation and consists of teachers' stimulation of reasoning and deep discussion in opposition to drilling. It also involves specific feedback and the use of

language techniques that support language development, such as modeling, frequent conversations and mapping (Pianta, et al., 2008).

The observational measure developed to rate the interactions based on this conceptual model, the Classroom Assessment Scoring System, allows a comprehensive, coherent and systematic perspective of teacher-child interactions (Pianta, et al., 2008). Assessing the major domains and the respective dimensions it becomes possible to analyze if teachers are effectively supporting children's academic and social development (Hamre, Goffin, & Kraft-Sayre, 2009).

### **1.3. Artistic Activities in Pre-School Education**

Contact with different artistic languages, especially at this stage, is extremely important because it allows children to develop aspects such as emotionality, imagination, creativity and gross motor skills (Volchegorskaya & Nogina, 2014). Artistic expressions permit the child to acquire new tools to express themselves, communicate, which are essential for their development (Silva, I.L., Marques, L., Mata, L. & Rosa, M. (2016).

Experience with the arts can be lived through appreciation, execution and creation. The term appreciation refers to the contact that the child has with the works of others. Execution corresponds to the application of techniques and creation to the act of developing something new (Godinho & Brito, 2010).

What the child hears and sees allows the child to accumulate materials that will be used in the constructions of his fantasy (Vygotsky, 2009). Therefore, the act of creating ends up depending on the experiences that children have (Heatinger, 1998). Then there is a process of elaboration of the accumulated materials, whose fundamental aspects are the dissociation and the association of perceived impressions (Vygotsky, 2009).

According to Godinho and Brito (2010) it is important that the children have contact with the three spheres: create, execute and appreciate the work of the others because each of them has specific characteristics and results.

This type of activity is usually linked to expression, experimentation and discovery (Godinho & Brito, 2010), characteristics that nowadays are highly valued.

Art also offers children the opportunity to explore their own self by representing, for example, their experiences through art. Through the colors teachers can explore themes, for example, related to children's emotions (Riley, Carns, Ramminger, Klinkner, Sisco, 2009). The colors chosen can manifest deep emotions (Garbarino, Dubrow, Kostelny & Pardo, 1992). Children's drawings are a great resource for teachers to understand what is going on with children and may help to explain what makes them fail (Silva, Oliveira, Scarabelli, Costa, & Oliveira, 2010).

Based on Silva and collaborators (2010), arts and crafts allow children to work on the affective and social interaction components. In addition, they contribute to the development of children's motor development and other contents related to school, personal and professional life. Studies reveal that children who have a close contact with drawing are better prepared to start reading (Riley et al., 2009) and helps in the first steps of learning mathematics (Silva et al., 2010).

Silva and collaborators (2016) advocate that children should have access to a multiplicity of materials. Have in educational contexts, crayons, paints, large white sheets for children are examples of simple strategies that can have quite positive effects on children's development (Riley et al., 2009)

Music contributes to develop spatial thinking, visual perception, attention, memory (Volchegorskaya & Nogina, 2014) and allows to develop an aesthetic sensibility (Silva, et al., 2016). As stated by the Silva and collaborators (2016), working the lyrics of the songs allows children to understand the meaning of the lyrics and consequently develop the language. In addition, emphasizes the value of silence, since it permits the child to memorize and explore the characteristics of the sound they hear.

Through group work, dance allows the development of a sense of sharing, a common goal, respect for the other, and the awareness of belonging to the group. Moreover, dance allows the development of the sense of rhythmic, creativity and

expressing feelings and emotions in real or imagined situations (Silva, et al., 2016).

Dramatic play allows the child to broaden their verbal and nonverbal communication and express their ideas and emotions (Silva, et al., 2016). This activity seems to be a good way for children to develop and practice social skills because these kinds of activities require cooperation, planning, tracing and common goals (Riley, Juan, Klinkner, Rammingner, 2008).

Different artistic languages have been considered to bring countless benefits to the development of the child. We can find some particularities, however, the different artistic languages have several characteristics in common such as working creativity and the ability to express and communicate. Artistic manifestations allow the construction of personal, social and cultural identity what means that "art and life are inseparable" (Silva, et al., 2016).

#### **1.4. Quality of Interactions in Artistic Activities**

Recent studies have start looking at variations of the quality of teacher-child interactions across activities (Booren, Downer, & Vitiello, 2012; Cabell, DeCoster, LoCasale-Crouch, Hamre, & Pianta, 2013). These studies have shown that characteristics related to the type of activity, such as grouping, content, and levels of adult involvement, are important in explaining the kind of interactions teachers have with children throughout the day. For instance, small-group activities have shown to be associated with higher levels of instructional quality (Cabell et al., 2013). Similarly, providing children with hands-on activities and open-ended art has been associated with children's more complex interactions in the classroom (Kontos, Burchinal, Howes, Wisseh, & Galinsky, 2002). Stipek (2004) suggested that providing rich, hands-on experiences to children, and making available materials, may facilitate children's interest and levels of engagement.

However, to our knowledge, no study yet has examined the links between artistic activities and the quality of teacher-child interactions. Moreover, how



artistic activities are characterized in Portuguese crèches, in terms of grouping, content, materials, and levels of adult involvement remains poorly understood.

In the present study, the first goal is to characterize the artistic activities according to several features, namely, levels of adult involvement, themes/content, materials, social grouping, structure and location. We aim at understanding how teachers organize and structure artistic activities in crèche, the materials they use and the approached content, and the extent to which there is variation or specific patterns can be identified.

The second goal of this study is to explore the relationship between those characteristics and the quality of the teacher–child interactions during artistic activities. Although this study is exploratory, based on previous studies, we expect to find positive associations between the quality of teacher-child interactions and higher levels of adult involvement, small group activities, higher use of hands-on activities and open-ended activities.

## **2. Method**

### **2.1. Participants**

The sample of the present study consisted of 31 pre-school classrooms from 23 Portuguese centers. In 5 centers, 2 classrooms per center were observed, in 1 center, 4 classrooms and in 17 centers, 1 classroom per center. Regarding age composition of the classroom, the vast majority of the classrooms ( $n = 29$ ) included 2-years-old children and one were mixed-aged, with children's ages ranging from 1 to 3 years old.

Teacher ages ( $n = 29$ ) ranged from 25 to 55 years old ( $M = 38.62$ ,  $SD = 7.63$ ). Regarding gender, the sample reflects the trend in this professional group, 30 female teachers and 1 male teacher. It is important to emphasize that

this male teacher is the music teacher and not the head teacher of the classroom. Concerning teacher qualifications ( $n = 30$ ), 1 teacher had a high-school degree (3.3%), 19 teachers had bachelor degree (63.3%) and 10 teachers had master degree (33.3%) in childhood education.

## **2.2. Measures**

### **2.2.1. Activity Setting Measure**

The aim of this measure it is to capture and characterize observable aspects that may influence the quality of interactions among adults and children in toddler classrooms.

Activity Setting Measure it is composed by six dimensions: Adult Involvement, Activity Content, Materials, Social Grouping, Open-ended and Location of the Activity.

Adult Involvement domain corresponds to the role taken by the adult during the activity: Non-involved, Passive, Active (Responsive, Facilitator, Directive) or Non-applicable. It is considered non-involved when adult does not engage in interaction and stays out of the children's activities, for example, doing paper work, cleaning, organizing the classroom or talking to another adult. We should select passive when adult help children (e.g. physical support, follow rules and passing out materials) without engaging in interaction or conversation and/ or when merely gives instruction without making any attempts to interact. We consider responsive when adult merely responds to the child without adding or enriching/scaffolding/extending or simply nods with head. It is considered facilitator when adult engages children in reciprocal conversations and/ or plays interactively, gives children suggestions regarding their activity, teacher-child interactions include scaffolding, extending, discussing, questioning and modelling, back and forth exchanges and respond to the children repeating what was said. Directive should be selected when adult-led activities, introduces new elements

into the activity, instructs children regarding their actions, gives directions on what children should do and have directs actions and dialogs.

Activity Content domain represents the curriculum or pedagogical content of the activity experienced by children.

Materials domain is related to the materials available during the activity in terms of content and percentage of children that are using these materials.

Social Grouping domain represents the kind of grouping predominant in the activity: Whole class, Whole/ Small group (when the activity is being provided for all children, but children are seated in small groups), Small group, Individual/ Pairs, Free and Other.

Open-ended domain represents whether the activity is open-ended or product-oriented. Activity is considered open-ended when there is no model or finish product intended, for example, coloring and painting. Activity is considered product-oriented when adult direct art activities, art with models such as coloring books.

Location domain refers to the location where the activity occurs: Classroom, Outdoor/ Playground/ Garden, Outdoor/ Trips, Library, Lunchroom/ Cafeteria, Atelier/ Art room, Play room, Physical activity room/ Gymnasium, Kitchen for children, Multifunctional room or Other.

In addition to the six domains, there are other aspects that are taken into account namely, if there are any parallel activities or not and a small description of the activity taking place during video-taped.

Observers should watch the first 15 minutes of each video; if the video lasts for less than 15 minutes, it should be coded the entire video. One video of 15 minutes will take approximately 20 minutes to code with the Activity Setting Manual (15 minutes of observation + 5 minutes of coding a specific sheet).

Interrater reliability was established for 25% of the videos. Weighted Kappa was considered adequate for the following dimensions: Social grouping, weighted kappa = 0.75; Open-ended activities, weighted kappa = 0.71; Location, weighted kappa = 1; Hands-on activities, weighted kappa = 0.61. However the weighted

kappa was low for adult involvement, weighted kappa = 0.21, and therefore interpretations regarding this dimension should be careful.

### **2.2.2. Classroom Assessment Scoring System Toddler**

The CLASS Toddler is an observation instrument designed to rate the quality of teacher-child interactions (La Paro, Hamre, & Pianta, 2012). Besides that, this tool describes several aspects of effective teaching across 15-36 months old children's school experiences. This scale conceptualizes teacher-child interactions along eight dimensions captured in two broad domains: Emotional and Behavioral Support and Engaged Support for Learning.

The Emotional and Behavioral Support domain consists of five dimensions: Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Child Perspectives and Behavior Guidance.

Positive Climate refers to relationships, positive affect and respect. This dimension reflects the connection between children and adult.

Negative Climate refers to negative affect, teacher negativity and child negativity.

Teacher Sensitivity refers to awareness, responsiveness and child comfort. Teacher Sensitivity dimension is related with the capacity of being aware of individual needs.

Regard for Child Perspectives refers to child focus, flexibility and support of independence. This dimension encompasses children's interests, motivations, perspectives and points of view.

Behavior Guidance refers to proactive, supporting positive behavior and problem behavior.

The Engaged Support for Learning domain consists of three dimensions: Facilitation of Learning and Development, Quality of Feedback and Language Modeling.

Facilitation of Learning and Development refers to active facilitation, expansion of cognition and children's active engagement.

Quality of Feedback refers to scaffolding, providing information and encouragement and affirmation.

Language Modeling refers to supporting language use repetition and extension, self and parallel talk and advanced language.

A rating ranging from 1 (minimally characteristic) to 7 (highly characteristic) is given to each dimension mentioned before. Each cycle of observation takes 15-20 minutes and during this period observer should watch interactions and take notes, followed by a 10 minutes period for recording codes. To conclude rating process, the observer must make judgments based on the frequency, depth and duration of interactions.

Interrater reliability was computed for 10% of the videos and ranged from .43 to .85, with an average of .66, which is considered good.

### **2.3. Procedures**

Before recruiting the participants, consent forms and approval from National Data Protection Center were obtained.

All teachers and children's parents signed a declaration of informed consent in which the general purposes of the study were exposed and the confidentiality of the data processing process was assured.

Videos were recorded in 31 classrooms during two days each. Videotaping occurred between January 2017 and April 2017.

The videos were then observed and scored using the Activity Setting Measure and the Classroom Assessment Scoring System Toddler tools.

The data were analyzed using the statistical program Statistical Package for the Social Sciences version 21.

### 3. Results

#### Descriptive statistics

Table 1. Descriptive statistics for artistic activities

	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
<b>Adult involvement</b>						
<b>Adult 1</b>						
Non-involved	31		.86	1.92	.00	6.67
Passive	31		7.63	11.38	.00	40.00
Active	31		87.61	14.36	53.33	100.00
Responsive	31		1.96	7.25	.00	40.00
Facilitator	31		67.99	32.14	3.33	100.00
Directive	31		17.95	23.24	.00	76.00
Non-Applicable	31		3.77	6.22	.00	21.43
<b>Adult 2</b>						
Non-involved	17		5.83	19.33	.00	79.17
Passive	17		36.08	31.45	.00	100.00
Active	17		23.38	33.69	.00	90.00
Responsive	17		.00	.00	.00	.00
Facilitator	17		21.18	34.03	.00	90.00
Directive	17		2.21	4.23	.00	12.50
Non-Applicable	17		5.83	19.33	.00	96.43
<b>Content</b>						
<b>Arts</b>						
Arts & crafts	27	87.1				
Dancing	1	3.2				
Playing musical instruments	2	6.5				
Singing	2	6.5				
<b>Language &amp; literacy</b>						
Book Reading	1	3.2				

Vocabulary	2	6.5				
<b>Materials</b>						
Arts						
Arts & crafts	27	87.1				
Playing musical instruments	2	6.5				
Singing	3	9.7				
Language & literacy						
Book Reading	1	3.2				
Vocabulary	1	3.2				
Science	1	3.2				
Play						
Pretend	1	3.2				
Manipulative	1	3.2				
Other	1	3.2				
Other	3	9.7				
<b>Hands-on material</b>						
0-24%	31		27.81	34.66	.00	100.00
25-49%	31		2.37	7.16	.00	30.00
50-74%	31		8.49	19.09	.00	93.33
75-100%	31		61.33	38.24	.00	100.00
<b>Social grouping</b>						
Whole class	13	41.9				
Small group	7	22.6				
Individual/ Pairs	11	33.5				
<b>Structure</b>						
Open-ended	18	58.1				
Product oriented	13	41.9				
<b>Location</b>						
Classroom	29	93.5				
Outdoor/ Playground	1	3.2				
Multifunctional room	1	3.2				

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## Adult involvement

Results show that adult 1 ( $n = 31$ ) was most of the time actively involved by facilitating child involvement in the activity ( $M = 67.99\%$  of the time,  $SD = 32.14$ ). This means that adults engage children in reciprocal conversations, gave children suggestions regarding their activities, discussed with them aspects of the activity

and model child behavior. Concerning adult 2 ( $n = 17$ ), they assumed during nearly one third of the time a passive attitude ( $M = 36.08\%$  of the time,  $SD = 31.45$ ), which means that adults were helping children, passing out the material, providing helpful physical support and giving some instructions but without engaging in interaction or conversations with children. In nearly one fifth of the time, adults 2 also adopted a facilitator posture ( $M = 21.18$ ,  $SD = 34.03$ ).

## **Content**

As expected, content was predominantly connected with arts (30 activities), although the content of one of the activities were predominantly connected with language and literacy, even though the activity had moments related to the arts. According to Table 1, the vast majority of the activities (87.1%) were related to arts and crafts. A small percentage was related to dancing (3.2%), playing musical instruments (6.5%), singing (6.5%), book reading (3.2%) or vocabulary (6.5%).

## **Material**

The largest percentage of material used during activities was connected with arts and crafts, 87.1%, for example, crayons and play dough. 6.5% of the material was connected with dancing, 9.7% with singing, 3.2% with book reading, 3.2% with vocabulary, 3.2% with science (e.g. sea shells), 3.2% with pretend play and 3.2%, with manipulative play, 3.2%, with other materials connected with play (e.g. children were using balloons to paint) and 9.7% with other, using for example white t-shirts as white sheets.

## **Hands-on material**

In the vast majority of time ( $M = 61.33$ ,  $SD = 38.24$ ), 75% to 100% of the children had hands-on material, which means that materials were available to most children with no restriction.



## Social grouping

Regarding types of social grouping, we found that social grouping greatly varies across activities, while 13 activities (41,9%) occurred with whole class, 7 (22,6%) activities were in a small group, while 11 activities (33,5%) occurred individually or with pairs.

## Structure

Concerning the structure of the activities, results show that the majority of the activities (18 activities; 58.1%), were open-ended, *which* means that in these activities children were not intended to follow a model or a finished product. In the rest of the activities, 13 activities (41.9%) were product-oriented, for example, coloring pictures of flowers printed in white sheets.

## Location

Of the 31 artistic activities observed, 29 activities occurred in the classroom, 93,5%, 1 activity in the outdoor/ playground, 3,2%, and 1 activity in a multifunctional room, 3,2%.

## Correlations between adult involvement and CLASS dimensions

Table 2 shows the correlations between levels of adult involvement and CLASS scores.

*Table 2. Correlations between adult involvement and CLASS dimensions.*

	Non-involved	Passive	Responsive	Facilitator	Direct
Positive Climate	-.115	-.403*	.157	.481**	-.436*
Negative Climate	.421*	.154	-.097	-.378*	.427*

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Teacher Sensitivity	-.150	-.402*	.151	.429*	-.369*
Regard for Child Perspectives	.078	-.378*	.104	.333	-.322
Behavior Guidance	-.090	-.315	.072	.436*	-.389*
Facilitation for Learning and Development	-.101	-.315	.140	.331	-.250
Quality Feedback	-.053	-.425*	.206	.555**	-.519**
Language Modeling	-.083	-.443*	.078	.523**	-.398*
Emotional and Behavioral Support	-.124	-.404*	.137	.477**	-.443*
Engaged Support for Learning	-.089	-.429*	.148	.506**	-.414*

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\* $p < .05$ , \*\* $p < .01$

As shown in Table 2, there were statistically significant correlations between adult involvement and several CLASS dimensions.

Regarding non-involvement, results show that when adult 1 is non-involved, the negative climate of the classroom tends to be higher,  $r = .421$ ,  $p = .018$ .

Same happened when the adult had a directive attitude towards children,  $r = .427$ ,  $p = .017$ . Additionally, when the teacher spent most of the time directing the activity, the positive climate,  $r = -.436$ ,  $p = .014$ , teacher sensitivity,  $r = -.369$ ,  $p = .041$ , behavior guidance,  $r = -.389$ ,  $p = .031$ , quality feedback,  $r = -.519$ ,  $p = .003$ , language modeling,  $r = -.398$ ,  $p = .027$ , emotional and behavioral support,  $r = -.443$ ,  $p = .012$ , and engaged support for learning,  $r = -.414$ ,  $p = .021$  tended to be lower.

Negative associations were also found between passive involvements. And positive climate,  $r = -.403$ ,  $p = .024$ , teacher sensitivity,  $r = -.402$ ,  $p = .025$ , regard for child perspectives,  $r = -.378$ ,  $p = .036$ , quality feedback,  $r = -.425$ ,  $p = .017$ ,

language modeling  $r = -.443$ ,  $p = .013$ , emotional and behavioral support,  $r = -.404$ ;  $sig = .024$ , engaged support for learning,  $r = -.429$ ;  $sig = .016$ .

When the teacher was a facilitator, negative climate tended to be lower,  $r = -.378$ ,  $p = .036$  whereas positive climate,  $r = .481$ ,  $p = .006$ , teacher sensitivity,  $r = .429$ ,  $p = .016$ , behavior guidance,  $r = -.436$ ,  $p = .014$ , quality feedback,  $r = .555$ ,  $p = .001$ , language modeling,  $r = .523$ ,  $p = .003$ , emotional and behavioral support,  $r = .477$ ,  $p = .007$  and engaged support for learning,  $r = .506$ ,  $p = .004$  tended to be higher.

### Correlations between hands-on materials and CLASS dimensions

Next, a set of correlations was computed between the percentage of children with hands-on materials and CLASS dimensions to determine whether the quality of teacher-child interactions varied as a function of the use of hands-on materials.

*Table 3. Correlations between hands-on material and CLASS dimensions.*

% of children with hands- on materials	0-24	25-49	50-74	75-100
Positive Climate	-.469**	-.060	.201	.336
Negative Climate	.060	-.127	-.123	.031
Teacher Sensitivity	-.343	-.044	.264	.187
Regard for Child Perspectives	-.492**	-.040	.160	.374*
Behavior Guidance	-.406*	-.073	.177	.294
Facilitation for Learning and	-.416*	-.008	.201	.278

Development				
Quality Feedback	-.301	.113	.250	.127
Language Modeling	-.279	.144	.218	.117
Emotional and Behavioral Support	-.446*	-.037	.221	.301
Engaged Support for Learning	-.364*	.089	.241	.193

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\* $p < .05$ , \*\* $p < .01$

As shown, there were statistically significant correlations between time spent with hands on material and several CLASS dimensions by the percentage of children.

When throughout the activity, few children (0%-24%) were involved with hands-on material, the positive climate,  $r = -.469$ ,  $p = .008$ , regard for child perspectives,  $r = -.492$ ,  $p = .005$ , behavior guidance,  $r = -.406$ ,  $p = .023$ , facilitation for learning and development,  $r = -.416$ ,  $p = .020$ , emotional and behavioral support,  $r = -.446$ ,  $p = .012$ , and engaged support for learning,  $r = -.364$ ,  $p = .044$ , tended to be lower.

On the other side, when most of children (75% and 100%) had hands-on materials during the most of the activity, the regard for child perspectives tended to be higher,  $r = .374$ ,  $p = .038$ .

### **Differences on CLASS scores based on social grouping**

To determine whether the quality of teacher-child interactions varied according to the social grouping of the activity, a set of ANOVAs were performed comparing activities that have used either the whole group, the small group or the individual/pair formats. The summary of results is provided in Table 4.

*Table 4. Correlations between Social grouping and CLASS dimensions*

	Whole group		Small group		Individual/ Pairs		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Emotional and Behavioral Support	4.71	.29	5.20	.40	5.31	.32	1.101
Engaged Support for Learning	3.26	.34	3.57	.47	3.46	.37	.164
Positive Climate	4.77	.39	5.00	.53	5.18	.43	.256
Negative Climate	1.69	.19	1.14	.25	1.09	.20	2.861
Teacher Sensitivity	4.39	.36	4.86	.50	5.27	.40	1.374
Regard for Child Perspectives	3.92	.40	4.57	.55	4.46	.44	.606
Behavior Guidance	4.15	.34	4.71	.46	4.73	.37	.827
Facilitation for Learning and Development	3.77	.39	4.29	.54	3.55	.43	.589
Quality Feedback	2.85	.31	2.86	.42	3.27	.34	.511
Language Modeling	3.15	.41	3.57	.56	3.55	.45	.275

Although there was a trend for activities involving smaller groups of children (small groups and individual/ pairs) to receive higher scores on most CLASS dimensions, mean differences were not statistically significant.

### **Correlations between the structure of the activity and CLASS scores**

To examine whether the quality of teacher-child interactions varied depending upon the activity was open-ended or product-oriented, correlations were computed. Results are presented in Table 5.

Table 5. Correlations between the structure of the activity and CLASS dimensions.

	Structure <sup>1</sup>
Positive Climate	-.414*
Negative Climate	.411*
Teacher Sensitivity	-.425*
Regard for Child Perspectives	-.571**
Behavior Guidance	-.456**
Facilitation for Learning and Development	-.260
Quality Feedback	-.121
Language Modeling	-.184
Emotional and Behavioral Support	-.533**
Engaged Support for Learning	-.211

<sup>1</sup>Open-ended activities = 1

\* $p < 0.05$ , \*\* $p < 0.001$

As shown, there were statistically significant correlations between open-ended activities and several CLASS dimensions. Results revealed that the scores of positive climate,  $r = -.414$ ,  $p = .021$ , teacher sensitivity,  $r = -.425$ ,  $p = .017$ , regard for child perspectives,  $r = -.571$ ,  $p = .001$ , behavior guidance,  $r = -.456$ ,  $p = .010$ , and emotional and behavioral support,  $r = -.533$ ,  $p = .002$  were higher when

the activities had an open-ended structure, whereas negative climate was lower,  $r = .411, p = .022$ .

#### **4. Discussion**

The present exploratory study was guided by two main objectives: (1) characterize the artistic activities according to several features, namely, levels of adult involvement, themes/content, materials, social grouping, structure and location (2) explore the relationship between those characteristics and the quality of the teacher–child interactions during artistic activities. We expected to find positive associations between the quality of teacher-child interactions and higher levels of adult involvement, higher use of hands-on activities, small group activities and open-ended activities.

##### **Characteristics of the artistic activities**

Regarding the first goal, it was possible to see that most activities were related to arts and crafts, whereas it was uncommon to observe activities related to music or dance. It is possible that music and dance are not part of the daily routines or are not developed by the head teacher but rather by a professional that goes regularly to the center. Apart from this trend, it was possible to see that there was great variation in terms of the levels of adult involvement, social grouping, structure of the activity and the use of hands-on activities. It seems that teachers make a great diversity of choices that are not determined by the content of the activity.

##### **Associations between the quality of teacher-child interactions and adult involvement**

As expected, a significant positive correlation was found between facilitator involvement and most of CLASS dimensions while for passive and directive a significant negative correlation was found in several dimensions. Moreover, regarding the negative climate dimension, a significant negative correlation was found between facilitator involvement while for non-involved and directive involvement the correlation was positive. The results are in line with literature by showing the importance of adult engage in reciprocal conversations and/ or interactive play. In addition, being aware, respectful and sensitive to children's actions, providing space for each child to speak, listening and communicating with the children seem to contribute to a positive climate and greater levels of stimulating interactions (Hohmann & Weikart, 2000; Howes, 2000) It is important to mention that, consistent with prior studies (Kontos, 1999), teachers' roles and patterns of involvement varied greatly, with repercussions in terms of the quality of their interactions. Interestingly, even though in directive role, teachers were highly engaged with children, more time spent directing was negatively related to the quality of teacher-child interactions, suggesting an interesting interplay between involvement and quality. Although higher levels of involvement seem indeed important for higher levels of quality of the interactions, which suggests that teachers' investment and energy into the activities are important for quality, the quality is not entirely dependent upon involvement; issues related to being attentive to children, allocate time for children to express themselves and to actively participate in the activity are also important for interaction quality.

### **Associations between the quality of teacher-child interactions and hands-on material**

Stipek (2004) suggested that providing rich, hands-on experiences to children, and make materials available for all children to use, may facilitate children's interest and levels of engagement. Literature also suggests that giving children opportunities to participate in hands-on activities is associated with children's more complex interaction in the classroom (Kontos, et.al., 2002). The present study goes further and shows that more time spent with hands-on



materials contribute to higher levels of several CLASS dimensions, enriching the interactions and contributing to levels of warmth and closeness.

### **Associations between the quality of teacher-child interactions and social grouping**

Contrary to our expectations, mean differences between whole groups and smaller groups (small groups and individual/ pairs) were not statistically significant, even though we could find a tendency for smaller groups of children (small groups and individual/pairs) to receive higher scores on most CLASS dimensions. Despite several theories favoring the benefits of small group instruction, prior research conducted in the US has suggested that teachers' instructional interactions in preschool were higher in the large group setting, compared to free choice activities or meals, which usually occur in smaller groups (Cabell et al., 2013). In another study, Chen and Kim (2014) reached similar results, suggesting that the quality of teachers' verbal interactions was higher during large-group activities compared to small-group activities. However, in these studies, it was not possible to disentangle content from social grouping: activities with academic content occurred mainly through large group whereas meals or play occurred mainly in small group settings. In this study, we compared different social arrangements within the same content, which provides a clearer picture of the effects of social grouping. It is also worth mentioning that this study occurred in crèche and not in preschool. In our sample, it seems that social grouping does not affect the quality of interactions, but it is important to mention that large groups in crèche included a small number of children (10 to 12), compared to the common large group of 25 children in preschool classrooms. Further research is needed to better understand how social grouping can affect levels of quality within the same activity and age group.

### **Associations between the quality of teacher-child interactions and open-ended activities**

As expected, CLASS dimensions were higher when the activities had an open-ended structure, whereas negative climate was lower. This result is

consistent with prior research (e.g., Kontos et al., 2002) suggesting that open-ended art activities can promote children's complex interactions with material and with their peers.

### **Limitations and future directions**

This study extended prior studies by characterizing the artistic activities according to several features in preschool. Apart from that, this study makes new contributions to the literature since it allows us to understand the quality of teacher-child interactions in artistic activities, how teachers organize and structure artistic activities, the materials they use and how they approached the content, and the extent to which there is variation across classrooms or specific patterns can be identified. This study is also part of a broader project that is developing a new tool. The fact that was used a new tool, Activity Setting Measure that has allowed us to capture and characterize different aspects of the children daily activities likely to influence the quality of interactions among adults and children in toddler classrooms, allowed not only to characterize artistic activities but also to test this tool and understand what its constraints are.

In evaluating our research, several limitations of the current study are noteworthy. The results presented in this study should be interpreted in light of its limitations. Future research would benefit from a larger sample to determine the generalizability of the findings, because the relatively small number of classrooms may have limited the power to detect effects. Apart from sample size it is important to refer that interrater reliability was relatively low for Adult involvement, which that interpretations regarding this dimension should be careful. Considering that the Activity Setting Measure is a new tool recently developed, it seems necessary to refine the measure by establishing clearer criteria for each level of involvement and by providing more examples to the observers.

Despite all these constraints it is clear the importance to continue studying these contents. As suggestions for the future research and considering the limitations of this study, it would be important to increase the number of

participants and to overcome the difficulties that arose during the observation of the videos. In addition, it would be important to seek to know more about the effects of the artistic activities and the quality of interactions during this type of activities, to understand the tendency towards the predominance of arts and crafts activities and about our unexpected results and would be interesting to try to explore the reality of other countries.

## 5. Conclusions

The main mission of this study is to highlight the importance of the quality of process variables and structural variables and to draw attention to artistic activities that are poorly explored.

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